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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/368,201	08/04/99	KNOPLIOCH	J 14XZ00047
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MM22/0203

EXAMINER

SMITH, R

ART UNIT

PAPER NUMBER

2859

DATE MAILED:

02/03/00

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

## Office Action Summary

**Application No.**

09/368,201

**Applicant(s)**

KNOPLIOCH ET AL.

**Examiner**

R. Alexander Smith

**Art Unit**

2859

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 August 1999 is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. § 119

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some \* c) ☒ None of the CERTIFIED copies of the priority documents have been:
1. ☒ received.
2. ☐ received in Application No. (Series Code / Serial Number) \_\_\_\_.
3. ☐ received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

### Attachment(s)

- 14) ☒ Notice of References Cited (PTO-892)
- 15) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 16) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 17) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 18) ☐ Notice of Informal Patent Application (PTO-152)
- 19) ☐ Other: \_\_\_\_\_.

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## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to because figure 1 is of poor quality making it impossible to distinguish as to which segments the indicia 1-3 are labeling and which base points indicia 11-15 are labeling. Correction is required.
2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the films, the plurality of films, the parallel sections, the subsegments, and the distribution of density must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.
3. Applicant is required to submit a proposed drawing correction in reply to this Office action. However, formal correction of the noted defect can be deferred until the application is allowed by the examiner.

### ***Specification***

4. The specification is objected because page 4, line 5, "Figure 4" should be --Figure 1--.

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5. The examiner is objecting to the specification but does not know whether the problem is with the specification, including the claims and the drawings, or with the examiner's interpretation. In trying to explain the problem, the examiner is comparing the three dimensional figures 4 and 5 and is identifying the segments created within claim 1(b) by the second rank points as second rank subsegments for this objection only.

As the examiner reads the specification and the claims, segment 46 in figure 4 is defined by base points 43 and 44. In applying the created second rank point 47 in figure 5 and claim 1(b), which is closer to the contour of the three dimensional object, the applicant implies that the segment 46 in figure 4 is divided into two second rank subsegments, 46 and 51 in figure 5; however, this creates two interpretation problems, which are:

- a) what is the relationship between segment 46 in figure 4 and second rank subsegment 46 in figure 5? In three dimensions, the two do not appear to represent the same segment wherein the specification, including the claims and drawings, discloses the segment and subsegment as the same.
- b) it appears to the examiner that the applicant is defining not two new facets and three new segments for each successive iteratively newly divided subsegment but four new facets and four new segments, and therefore the volume would be the calculated difference between the previous subsegment facets and the new subsegment facets?

The examiner would appreciate and needs clarification on this objection. This objection may be associated with the first paragraph 35 U.S.C. 112 claim rejections as stated below.

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*Claim Rejections - 35 USC § 112*

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 1-18 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 1-3: "a plurality of films" in lines 2-3 in claim 1, "the films" and "parallel sections" in claim 2, and "a plurality of films is treated to supply a description of the three-dimensional volume" in claim 3 have not been described in the specification in such a way as to reasonably convey the relevance to one skilled in the art.

Furthermore, it appears to the examiner that claim 1 is claiming a method for directly segmenting and estimating the volume of a three dimensional object in accordance with figures 1, 4 and 5. However, if the examiner assumes that the above limitations, i.e., films and sections, are directed to segmentation and estimation of an area within a two dimensional contour of a three dimensional object and then layering a plurality of said films or parallel sections in order to determine the volume of the three dimensional object, then the claims and specification become more confusing. It appears to the examiner that the specification, including the claims, is

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confusing the applicant's two dimensional segmentation and estimation of a film or section, as shown in figures 2 and 3, and then layering a plurality of said films or sections to determine the volume of the object with the direct segmentation and estimation of the three dimensional object, as shown in figures 4 and 5.

Because of the above problems, no prior art is being applied to the claims.

8. Claim 16 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. With respect to claim 16: the examiner does not find any discussion or support within the specification for the distribution of density nor how the distribution of density would be calculated.

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 1-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

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Claim 1:

a) "each segment" in line 7 and line 12 is confusing because it is not clear if each segment is referring to all the segments, the segments defined by the base points, or the segments defined by the second rank points. The applicant should note that this confusion also extends to claims 4-6 and 14.

b) "a second rank point" in line 10 should be --each of said second rank points--

Claim 2: "the films" is confusing because it is not clear if this is part of "a plurality of films" disclosed in lines 2-3 in claim 1.

Claim 3: "a plurality of films" is confusing because it is unclear if this limitation is the same "a plurality of films" disclosed in lines 2-3 of claim 1 or another a plurality of films.

Claims 7-13: "each second point" should be --each said second point--

Claim 14:

a) "subsegments" in line 2 is confusing because it is not clear if subsegments is part of the subsegments in claim 1 or other subsegments.

b) "negligible" makes the claim language indefinite because it is not clear as to what change of volume will qualify as negligible.

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Claim 15: "six first base points" is confusing because it is not clear if they are part of the given number of base points in line 4 of claim 1 or are new base points.

Claims 17 and 18: "any point" and "the points" respectively are confusing because it is not clear if the applicant is referring to the base points, the second rank points, the third rank points, or all the points.

### *Conclusion*

11. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure. The prior art cited in PTO-892 and not mentioned above disclose related methods.

Akiyama discloses a method which estimates and segments the volume of a three dimensional object having a given number of base points, facets whose vertices are base points, each facet being defined by three segments and each segment being common to two adjacent facets, the segments are adapted to create second rank points (figure 8b-8e and figure 10) resulting in two new facets and three new segments, each segment is iteratively divided into subsegments by defining third rank points which would result in two new facets and three new segments, the position of each second point is proposed as a function of the position of the first two adjacent points (see figures 8a-8e), the segments are dividable into subsegments until the change in volume is negligible, the six first base points are defined (the points defined by the



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triangles surrounding P' in figure 8c), any point of the shape can be modified, and the points are defined manually (if desired by manually following the procedures in figure 10).

Park discloses a method which estimates and segments the films and parallel sections an object having a given number of base points (figures 1a, 2, 10a, 12a, and 14a), facets whose vertices are base points, each facet being defined by three segments and each segment being common to two adjacent facets, the segments are adapted to create second rank points (figure 1b, 10b, 12b, and 14b) resulting in two new facets and three new segments, each segment is iteratively divided into subsegments (figures 10c, 12c, and 14c) by defining third rank points which would result in two new facets and three new segments, the position of each second point is proposed as a function of the position of the first two adjacent points, each second point is proposed as a function of the orientation of the perpendiculars to the first two adjacent points (procedure NR), the segments are dividable into subsegments until the change in area of the film or parallel sections is negligible, the six first base points are defined and the points are defined manually (if desired).

Vining discloses a method wherein three dimensional objects are created by layering or stacking a plurality of films or parallel sections can be layered in order to estimate the volume.

Kasson et al., Meshkat et al., Holmes, and Economy et al. each disclose a method which estimates and segments the volume of a three dimensional object having a given number of base points, facets whose vertices are base points, each facet being defined by three segments and each segment being common to two adjacent facets, the segments are adapted to create second rank points.

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12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Smith whose telephone number is (703) 305-0647. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.

RAS

January 28, 2000

  
ANDREW H. HIRSHFELD  
PRIMARY EXAMINER